EMERGING STANDARDS OF TECHNOLOGICAL COMPETENCE

RONALD L. CHICHESTER[1]
Law Office of Ronald Chichester, P.C.
31526 Helen Lane
Tomball, Texas 77375
713.302.1679
ron@texascomputerlaw.com
http://www.texascomputerlaw.com

State Bar of Texas
29TH ANNUAL
ADVANCED EVIDENCE AND DISCOVERY COURSE
April 7 - 8, 2016   Dallas
May 19 - 20, 2016   San Antonio

CHAPTER 19

TABLE OF CONTENTS

EMERGING STANDARDS OF TECHNOLOGICAL COMPETENCE

I. INTRODUCTION

Lawyers were "knowledge workers" before that cliché was first coined.[2] Knowledge workers generally require three types of thinking: convergent (correctly answer factual questions); divergent (generate possible solutions from a given situation); and creative (come up with novel solutions to problems). Quite often, all three types of thinking are evident in a lawyer's work product. Indeed, it was this ability to use the three types of thinking that set lawyers (and other knowledge workers) apart.

A century ago, only the client or a court consumed the work product generated by lawyers. The information in a legal brief started in the lawyer's head, was spoken to his secretary, transcribed to paper, presented to the client or court, filed away in a cabinet, moved to a box, and then finally moved to a landfill. Much of the knowledge distilled by the attorney went to waste. Clients often sought out lawyers who had tried similar cases in an attempt to leverage past work. Such was the state of the art in those days.

The Gouffé Case, circa 1890, available at http://traitsdejustice.bpi.fr/home.php?id=4

II. MORE RECENT HISTORY

The advent of computers began to change the practice of law in the 1980's, after computers had largely automated some of the other professions, particularly engineering.[3] At first, attorneys viewed computers as being beneath them. They were glorified devices fit only for their secretaries. Even as late as the mid 1990's, some law firms required– as their standard practice – the deletion of a document once it had been printed. In short, the personal computer was just a very expensive typewriter. There was one area, however, where computers made perfect sense – legal research. Cases and scholarly articles were cataloged electronically and, by 1990, law schools were teaching students how to perform *keyword searches* using *Boolean logic*.

As PC's became more pervasive, many attorneys were assigned one whether they wanted it or not, in some cases relegating many PC's to use as expensive paperweights. Eventually, (grudgingly) attorneys began using personal computers to draft their own documents, with a corresponding increase in the attorney-to-secretary ratio. An attorney's skill with a word processor soon became *de rigor*. On the one hand, the concept of cut/copy/paste enabled chunks of older work product to be re-used in other cases, saving time. On the other hand, personal computers turned out to be wonderful tools for procrastination, wherein the time that could have been saved was converted into time for more revisions, so briefs took just as long to write although ostensively of higher quality.

By the mid-1990's, the electronic files that were generated by attorneys were moved off onto central storage devices. This led to yet another concept – cut/copy/paste of one's work product by *other* attorneys. However, the internal structure of most major law firms discouraged an attorney from sharing his work product with partners and associates who, for all intents and purposes, competed with each other. The structure of law firms did not enable the original attorney to get a "cut" of time when an associate utilized the information in *their* electronic file. This was yet another instance where the old style practice of keeping knowledge scarce (to enhance its value) clashed with technology (which made the sharing of information nearly free).

Long term storage of electronic files also led to the concept of search engines and indexing (so that the other attorney could find the right file in the first place). The 90's also brought us the biggest time-killer of them all: email. Clients loved email, and soon attorneys could not get away from it. Blackberrys went from being a gadget to indispensible. Then along came attachments for email, and this gave new life to under-utilized disk space and created a market for de-duplication in the burgeoning field of e-discovery. Yet it was email that prompted attorneys to become adept at *communication* and data *format*. The right version of the electronic file needed to get to the right client (and <u>not</u> opposing counsel), and had to be readable by the client's suit of software. Incidentally, clients now realize that the attorney's work product can be added to their own storehouse of knowledge, and lawyers should know that

their knowledge will be *data mined* both by clients and other attorneys.

Attorneys weren't the only ones using computers. Indeed, well over 90% of litigation documents were first generated in electronic form. Consequently, the field of e-discovery has generated a bevy of technologies requiring the litigator's attention. There arose terms such as *metadata, native format, structured and unstructured data, databases, content management systems* and *keyword searches* that could engender malpractice difficulties if not handled correctly. Later came *predictive coding* and *automated document review*, the boon of partners and the bane of young associates.

Today, the Internet acts as the penultimate central server, where an attorney's newly acquired communication and formatting skills could be leveraged for yet another concept: *collaboration*. Yes, cooperation in the inherently adversarial. Attorneys and opposing counsel are now encouraged to "work together" on a document that settles a dispute or transaction between their respective clients, which led to another malpractice "gotcha" – *document metadata*. Because metadata is data about data, and past edits that are stored by word processors is metadata that can be discovered by the opposing counsel, such metadata can be a nasty surprise (with ethical implications) for the unwary. Competent transaction attorneys had to become adept at metadata laundering, but real-time collaboration complicates the ethical issues for transactional attorneys significantly.

The late 1990's and early 2000's brought us the horrors of widespread hacking on the Internet, and so attorneys now have to learn about *encryption*. Encryption became the tool of choice after California enacted the first data breach/notification law in 2003, with all but three states having followed suit within a decade. Unfortunately, law firms were found to be great victims for hackers, because the firm's servers proved to be a "target rich" environment that was relatively unprotected. The infamous breach of Target's headquarters highlighted the vulnerabilities that clients faced with their supplier's lack of security measures. The Target breach and others have prompted insurance carriers to prompt their insured to conduct *security audits* of law firms. Managing partners now have to grapple with details about *firewalls*, *IT controls*, and *incidence response* policies. Statutory data breach/notification laws are also forcing attorneys to appreciate the *privacy* implications of their data retention policies, and how they store and protect their client confidences as well as sensitive financial and health data.

III. THE FUTURE

Thirty years ago, I witnessed – first hand – how the profession of engineering was automated. I was a young engineer, fresh out of the University of Michigan, delighted to know that I was a member of a small team of engineers at General Dynamics who could design (from scratch) an F-16-class airplane in two weeks. While we marveled at our abilities, we lost sight of the fact that we had cleverly worked ourselves out of a job. I got out of that profession while I could and went to law school, thinking that the legal profession was immune to similar misfortune. Alas, I was wrong.

There is a phrase, often attributed to Joseph Stalin, that "quantity has a quality all its own." In a recent book by Martin Ford[4], he cites Moore's Law:

> "the well-established rule of thumb that says computing power roughly doubles every eighteen to twenty-four months"

and suggest that:

> "not everyone has assimilated the implications of this extraordinary exponential process."[5]

He employed the simile of a traveling car. For the first minute, you drive at 5 mph and cover 440 feet. Ford notes that Moore's Law has been in effect since 1958 (the year of the first integrated circuit), so by comparison, cars today would be traveling at 671 *million* miles per hour and cover more than 11 million miles per minute. Ford rightly points out that there is an entirely different character – and capability – between the first minute and the twenty-eighth minute, and that there is a similar different character and capability in computing between 1958 and today. Quantity indeed has a quality all its own.

Both Ford and Jaron Lanier[6] point out that the Internet has resulted in a net *loss* of jobs. Ford goes further, and cites statistics that in the first decade of the Twenty-First Century, *no* net jobs were added in the United States, even though the population increased by 10 million and the economy grew substantially.[7] Indeed, the labor participation rate is currently at 62.5% (and dropping), which is at its lowest rate since 1978, and well below the peak in 2000. Correspondingly, economists such as Thomas Piketty, have shown conclusively that the returns on capital now exceed greatly the returns on labor.[8] The reason for that disparity is that, since the advent of integrated circuits, the productivity gains – which had fueled the rise of the middle class in America after World War II – now fuels the owners of the capital, namely the owners of the machines that have been used to increase productivity so dramatically in the last 30 years.

In short, the tools that made a worker more productive in 1958 are now *replacing* those workers

entirely. Moreover, the network effect – itself a product of that same technology – has enabled those workers to be replaced on a mammoth scale. Such is the difference in capability between 1958 and today.

In the past, a few of those displaced from factory work sought opportunity in the professions that required analytical thinking. The hope was that the knowledge professions would be difficult to automate. Unfortunately, the last ten years have shown that it is the knowledge professions (such as law) which are automated most easily.[9]

Several months ago, I attended the International Legal Technology Association conference in Las Vegas, Nevada. While at this event, I attended a session hosted by IBM. The session was about IBM's use of its Watson technology and how it could be applied to the practice of law. Watson, as you may know, is the name given to an artificial intelligence program that has been in development at IBM for many years. The original Watson was used (famously) to win at the TV game of Jeopardy. The original Watson has since been retired, and for all we know is dreaming of electric sheep.

Now, however, updated versions of Watson have been developed and tailored to the practice of law. The application is called "ROSS."[10] IBM is trying to license copies of ROSS to law firms, and in particular to partners of large law firms. The idea is that ROSS can replace a human associate *entirely*. I'm not sure of the pricing scheme that IBM proposes, but it's a safe bet that it is less than the cost of a human associate. What makes ROSS particularly attractive is that doesn't require health care, doesn't eat, doesn't sleep, happily works weekends and holidays, and doesn't conspire to steal your clients. Oh, and in 18 months, it will get a new CPU that is twice as fast as the old one, thanks to Moore's law.
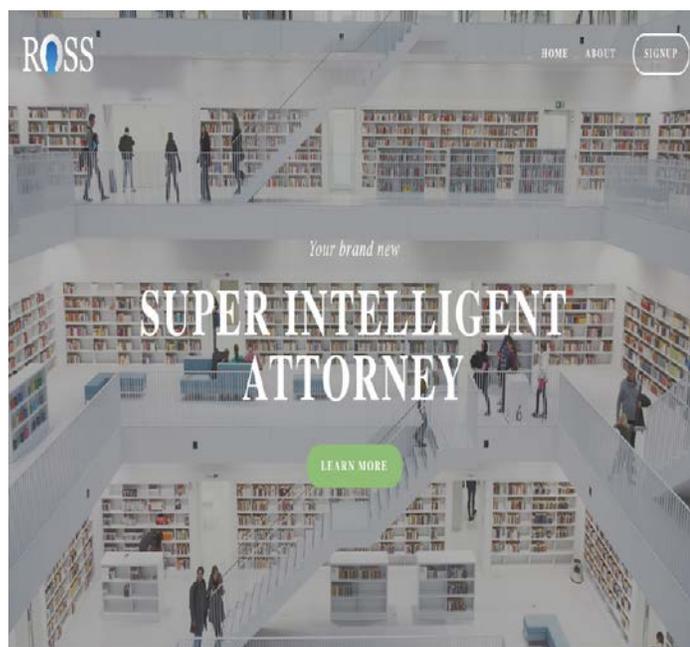
IBM touts ROSS for document review (because over 90% of documents are in electronic form). However, IBM says ROSS can do more. For instance, given a subject, Watson can go out onto the Internet and find – on its own – cases relevant to that particular topic and compare and contrast the different cases and come to its own conclusions. ROSS can also, on a daily basis, find legal news relevant to the owner's practice and inform them accordingly. Most importantly, ROSS can *learn on its own accord.* Eventually, we can expect ROSS to be able to draft to find all the business agreements on a particular topic, and draft its own tailored version based upon a term sheet.

If that wasn't bad enough, consider if all the copies of ROSS were fitted with a "phone home" feature that recorded what the licensee-attorney did with ROSS, and then describe what the attorney subsequently did for her client did. What can ROSS tell its central authority? Couldn't ROSS use the information that it has learned to mimic the ability of the partner who licensed ROSS from IBM? Could that information then be used automate the abilities of the licensee? Could then IBM then try to sell an attorney-enhanced version of ROSS to her own client?

The implications for the legal profession are obvious. Right now, this very minute, jobs in the legal profession are being automated out of existence. While you may relish the idea that attorneys in India and New Zealand are now too expensive compared to a robot, that fact does nothing for you. Associates are being automated, but in the very near future, most partners and in-house lawyers will be automated out of a job too.

IBM clearly understands the implications of their technology. They are quick to point out that, currently, ROSS is only a tool to "enhance" the work of the attorney who has licensed the technology. That's fine if you're the partner and not the newly minted lawyer coming out of law school with a crushing debt load. IBM is right; there will still be lawyers 20 years from now. What IBM doesn't care to admit is that there will be far fewer lawyers then than now.

In their seminal work on the future of professions, Richard Susskind and Daniel Susskind [11] about the professions, which focused on "doctors, lawyers, teachers, accountants tax advisers, management consultants, architects, journalists, and the clergy (amongst others), on the organizations in which they work, and the institutions that govern their conduct."[12] In that book, they claimed that:

> "[W]e are on the brink of a period of fundamental and irreversible change in the way that the expertise of these specialists is made available in society. Technology will be the main driver of this change. And, in the long run, we will neither need nor want

professionals to work in the way that they did in the twentieth century and before."[13]

IV. BROADER IMPLICATIONS FOR SOCIETY

The professions had a special place in society. Indeed, it was that special status that requires the professionals to act ethically, both for their clients and for society as a whole. However, the justification for that "grand bargain" is being undermined.[14] When the ability to know and manipulate knowledge is within the grasp of the average individual, the need for professionals is eliminated. Unfortunately, it is not clear what those professionals are going to do. Or for that matter, what will happen to our economic system when the current trend of automation reaches its logical conclusion?

What happens when software offers abundance -- but only when you can afford it – is the focus of Lanier's book. As "Big Data" learns more about us, the corporations that wield it will be in a better position to strike increasingly harder bargains with consumers -- and what will happen in the Capitalist-centric America

when most of the citizens have no money? Stephen Hawking summed up the problem succinctly:

> "If machines produce everything we need, the outcome will depend on how things are distributed. Everyone can enjoy a life of luxurious leisure if the machine-produced wealth is shared, or most people can end up miserably poor if the machine-owners successfully lobby against wealth redistribution. So far, the trend seems to be toward the second option, with technology driving ever-increasing inequality."[15]

Kurt Vonnegut saw this problem coming decades ago. In his 1952 novel "Player Piano," one of the main characters quipped:

> "If you compete with a slave, you *are* a slave."[16]

---

[1] B.S., Aerospace Engineering, University of Michigan (1982); M.S. Aerospace Engineering (1984) University of Michigan; J.D. (1991) University of Houston Law Center. Homepage: http://www.texascomputerlaw.com

[2] The phrase was first coined by Peter Drucker. *See*, Peter F. Drucker, THE LANDMARKS OF TOMORROW (New York: Harper and Row 1959).

[3] The author was an aerospace engineer in the 1980's, and witnessed the automation of the engineering profession first hand. He recalls the stories that his bosses regaled him when they were junior engineers. They had all started out as human calculators (using slide rules) to perform calculations for more senior engineers. Hand-held calculators ended that practice – and hundreds of jobs with it. By the time that the author was in his twenties, it was possible for a small team of talented engineers to design (from scratch) an F-16 class airplane in two weeks – a task that theretofore had taken hundreds of engineers years to accomplish.

[4] Martin Ford, RISE OF THE ROBOTS" (Basic Books, 2015).

[5] Ford, at xii.

[6] Jaron Lanier, WHO OWNS THE FUTURE? (Simon & Schuster, 2013). Jaron Zepel Lanier is an American computer philosophy writer, computer scientist, visual artist, and composer of classical music. His website is at http://www.jaronlanier.com/

[7] *Ibid*. citing Neil Irwin, "Aughts Were a Lost Decade for U.S. Economy, Workers," *Washington Post*, January 2, 2010, http://www.washingtonpost.com/wp-dyn/content/article/2010/01/AR2010010101196.html

[8] See, Thomas Piketty, CAPITAL IN THE TWENTY-FIRST CENTURY (2013).

[9] Ford, supra, Chapters 2-3.

[10] The home page for Ross can be found at: http://www.rossintelligence.com/ At the front of that home page, Ross is touted as "Your Brand New Super Intelligent Attorney." On that website, IBM states that "ROSS is an artificially intelligent attorney to help you power through legal research. ROSS improves upon existing alternatives by actually understanding your questions in natural sentences like – 'Can a bankrupt company still conduct business?' ROSS then provides you an instant answer with citations and suggests highly topical readings from a variety of content sources."

[11] Richard Susskind and Daniel Susskind, THE FUTURE OF THE PROFESSIONS: HOW TECHNOLOGY WILL TRANSFORM THE WORK OF HUMAN EXPERTS (Oxford University Press, 2015).

[12] *Ibid.* at 1.

[13] *Ibid.*

[14] *Ibid* at 9-45.

[15] Alexander C. Kaufman, "Stephen Hawking Says We Should Really Be Scared Of Capitalism, Not Robots," Huffington Business (October 8, 2015), available at http://www.huffingtonpost.com/entry/stephen-hawking-capitalism-robots_5616c20ce4b0dbb8000d9f15

[16] Kurt Vonnegut, Jr., PLAYER PIANO (1952).